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N.T.S. 32D05J

REPORT ON HEAVY MINERAL SAMPLING AND ELECTRON MICROPROBE ANALYSES

SZ PROPERTY
BEN NEVIS TOWNSHIP, ONTARIO

LARDER LAKE MINING DIVISION

Written by:

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21272 Denfield Rd, London, Ontario

Robert J. Dillman

8901 Reily Drive, Mount Brydges, Ontario

January 29, 2020

I N D E X

Summary

This report summarizes the results of heavy mineral sampling on the SZ Property in Ben Nevis Township, Ontario. A total of 5 heavy mineral samples (HMC-1 to HMC-5) were collected from the property and examined for kimberlite indicator minerals, gold and base metals. Samples were collected over 3 days between August 23and August 28, 2019 by property owners: Robert Dillman, Jim Renaud and Jim Chard. The samples were processed for heavy minerals and examined by microscope by Robert Dillman at his facilities in Mount Brydges, Ontario. Mineral grains selected from the heavy mineral concentrates were analyzed and identified using an electron microprobe by Jim Renaud at his facilities in London, Ontario. A total of 190 potential kimberlite indicator minerals were picked from the heavy mineral concentrates and scanned using the EDS System. Further analyses were performed on 41 grains as potential indicators consisting of: pyrope garnet, green garnet, uvarovite, clinopyroxene, orthopyroxene, olivine, chromite, and ilmenite. The electron microprobe identified: 3 (G9) pyrope garnets, 5 pyrope-almandine, 7 green garnets/ uvarovite, 1 chrome diopside, 4 chrome clinopyroxene, 1 chrome orthopyroxene and 2 chromite grains.

Location and Access

The SZ Property straddles the intersection on Ben Nevis, Pontiac, Dokis and Tannahill Township's in the Larder Lake Mining Division, Ontario. The property is located approximately 27 kilometres north of Larder Lake, Ontario, Canada (Figure 1).

The SZ Property is accessible by truck. It can be reached from the town of Larder Lake by travelling east on Highway 66 for approximately 0.83 km to the intersection of Larder Station – Killamey Road. The southeast corner of the property is crossed by the Larder Station – Killamey Road approximately 35 km north of the intersection with Highway 66.

The north section of the property is also accessible by truck and ATV via logging roads intersecting with the Roscoe Road in Tannahill Township.

Claim Logistics

Figure 2 outlines the extent of the SZ Property. It consists of 24 mining claims comprised of 40 contiguous cells. The property covers an approximate area of 847 hectares.

The property is at a mean elevation of 330 metres above sea level. The elevation ranges 310 to 380 metres. Flat areas are mostly sand covered and void of outcrop. Higher elevations have abundant outcrop and pockets of locally derived glacial till.

Most of the property is forested by a mixture of spruce, balsam and poplar trees. Some areas have been logged in the last 20 years. Some of these areas have been reforested.

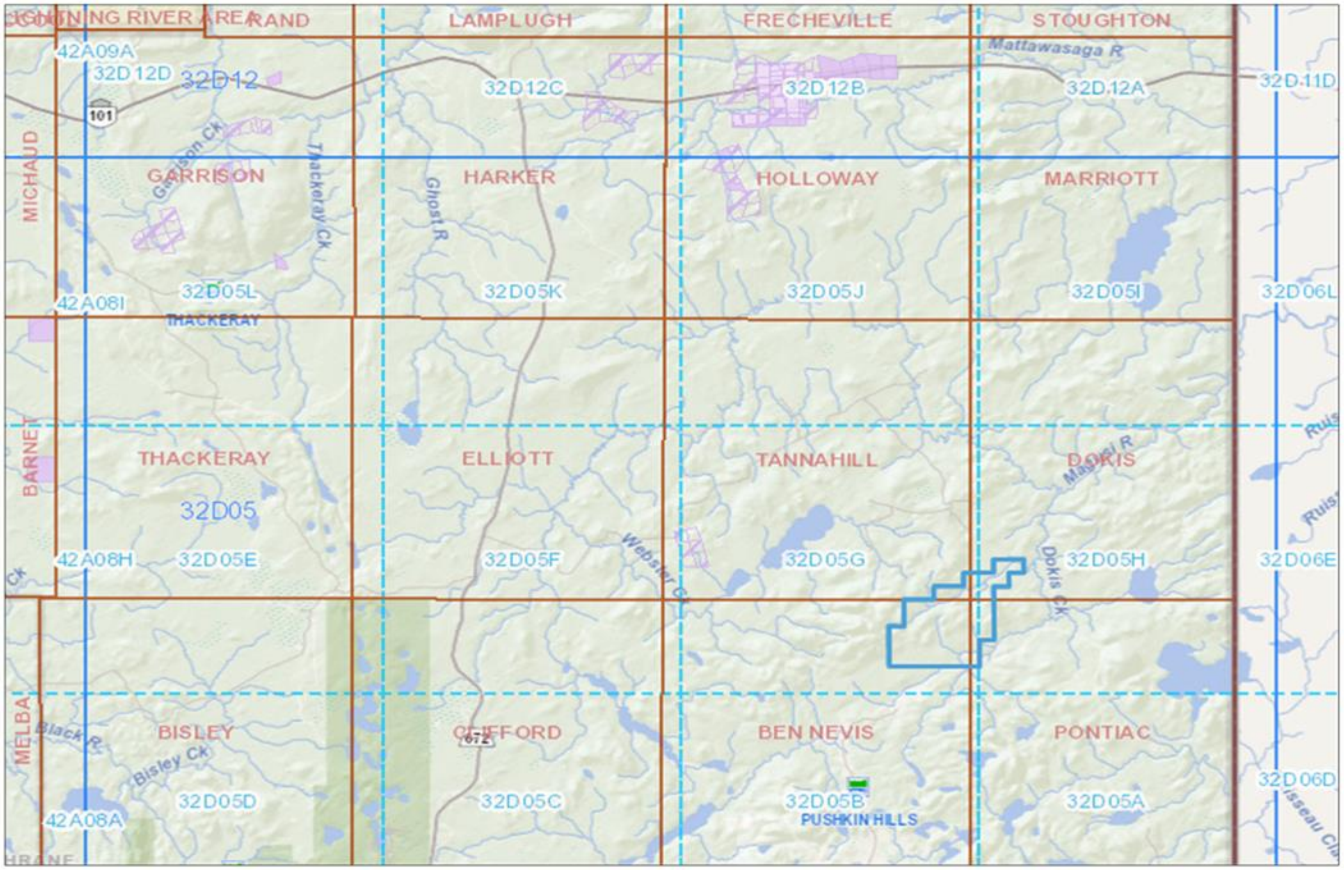
All claims forming the SZ Property are equally owned by:

James M. Chard of Cordova, Ontario
Dr. Jim Renaud (author) of London, Ontario
Robert J. Dillman (author) of Mount Brydges, Ontario

Ontario MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer

Property Location Map

Notes: **Figure 1. SZ Property**



Legend

Provincial Grid Cell
- Available
- Pending
- Unavailable

Mining Claim
- Mining Claim
- Boundary Claim

Alienation
- Withdrawal
- Notice

ENDM Administrative Boundaries
- ENDM Townships and Areas
- Geographic Lot Fabirc
- UTM Grid 1K
- UTM Grid 10K
- Mining Division
- Mineral Exploration and Development Region
- CLUPA Protected Area - Far North
- Resident Geologist District
- Federal Land Other
- Native Reserves
- AMIS Sites
- AMIS Features
- Drill Hole
- Mineral Occurrences

MLAS Mining History
- Withdrawal - History
- Notice - History
- Mining Claim - History
- Mining Land Tenure - History
- Legacy Claim

Provincial Grid
- Provincial Grid 250K
- Provincial Grid 50K
- Provincial Grid Group

Land Tenure
- Surface Rights
- Mining Rights
- Mining and Surface Rights
- Order-in-Council

0 9.74 km

Projection: Web Mercator

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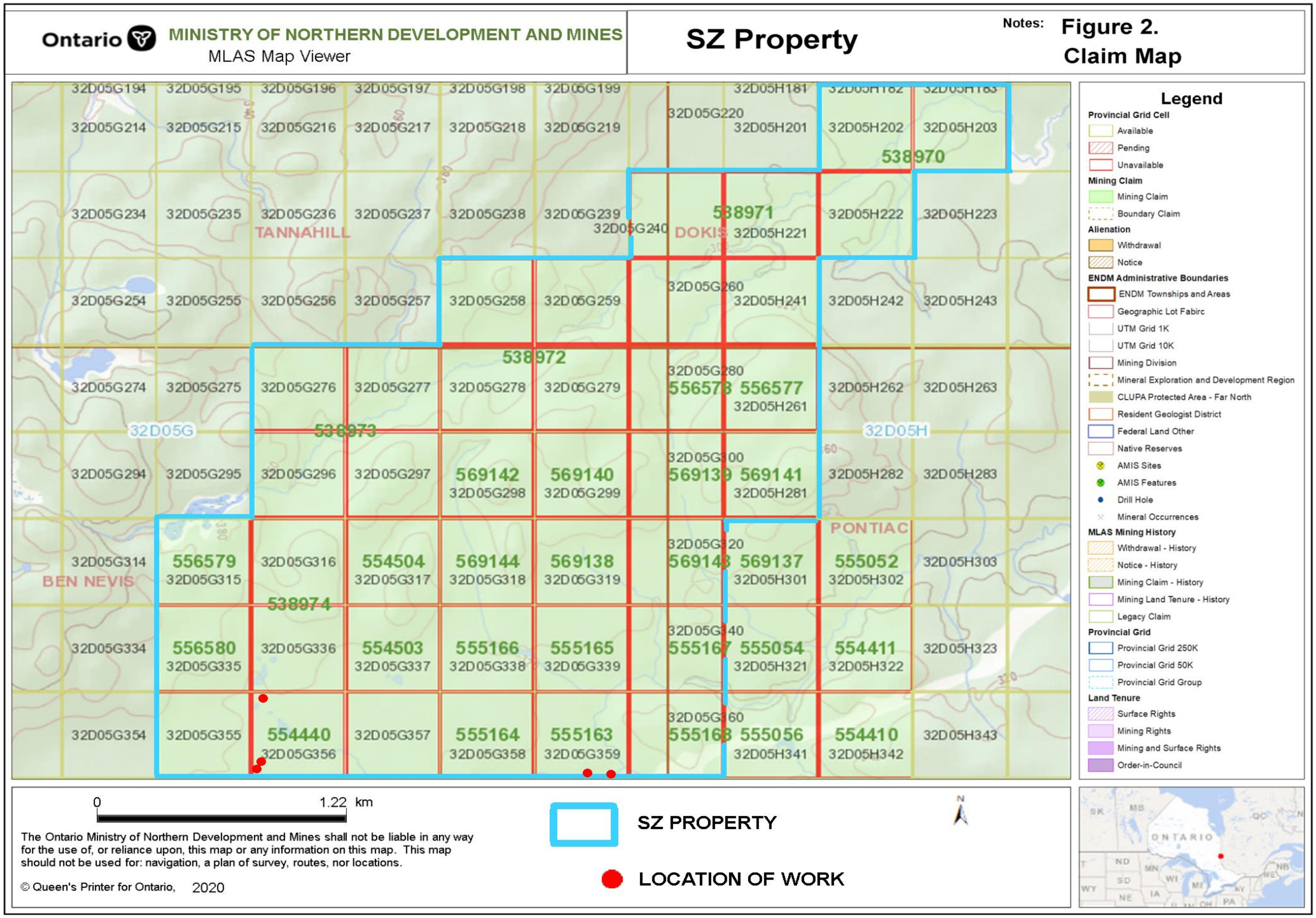

Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ Property
Notes:
Figure 2.
Claim Map
538970
538971
538972
538973
538974
556578
556577
569139
569141
569142
569140
556579
554504
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554503
555166
555165
555167
555054
554411
554440
555164
555163
555168
555056
554410
TANNAHILL
DOKIS
PONTIAC
BEN NEVIS
32D05G
32D05H
Legend
Provincial Grid Cell
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Mining Claim
Mining Claim
Boundary Claim
Alienation
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Mining Land Tenure - History
Legacy Claim
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Provincial Grid 250K
Provincial Grid 50K
Provincial Grid Group
Land Tenure
Surface Rights
Mining Rights
Mining and Surface Rights
Order-in-Council
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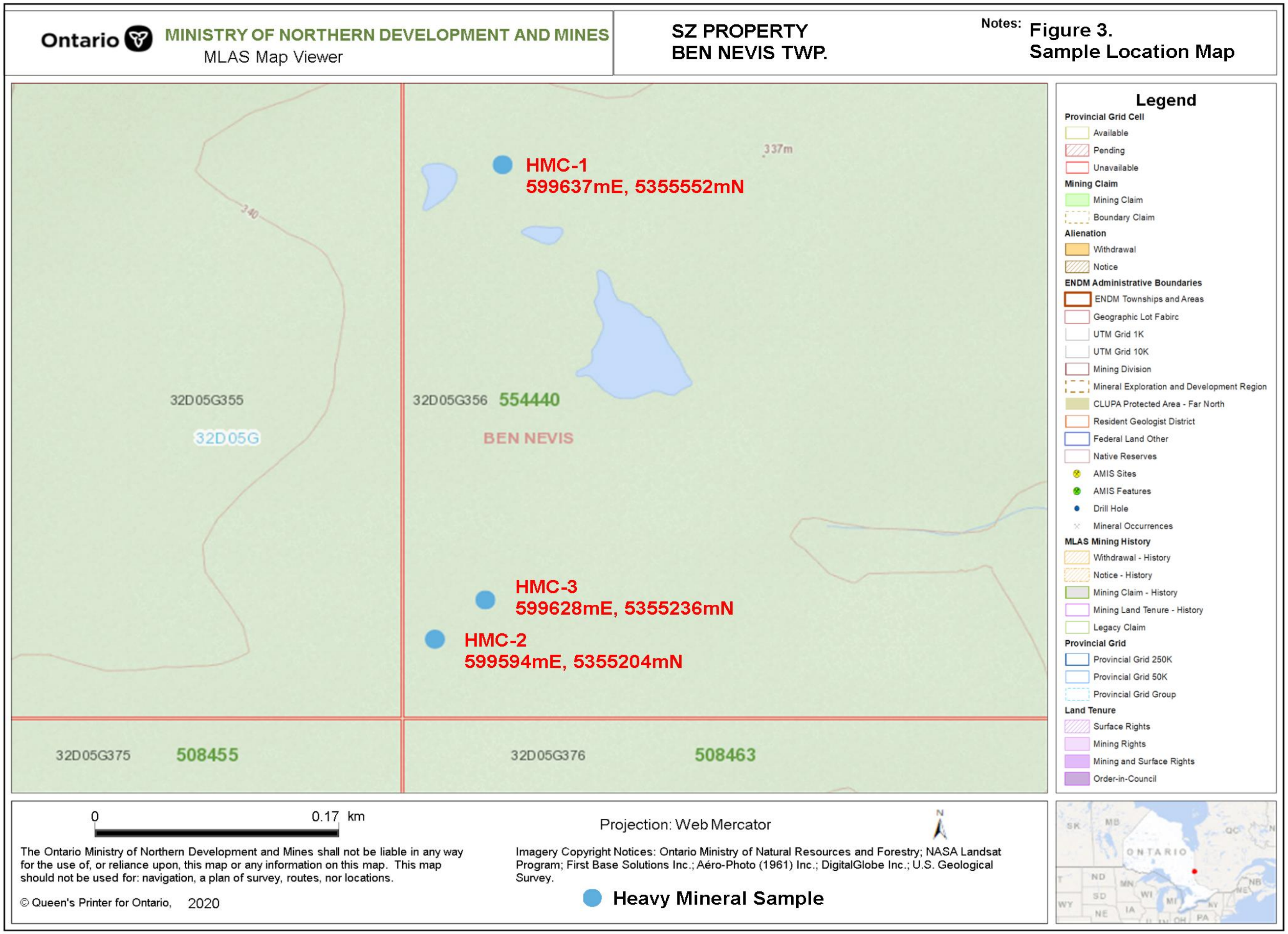
SZ PROPERTY
LOCATION OF WORK
ONTARIO


Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ PROPERTY
BEN NEVIS TWP.
Notes:
Figure 3.
Sample Location Map
HMC-1
599637mE, 5355552mN
HMC-3
599628mE, 5355236mN
HMC-2
599594mE, 5355204mN
337m
340
32D05G355
32D05G
32D05G356
554440
BEN NEVIS
32D05G375
508455
32D05G376
508463
Legend
Provincial Grid Cell
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Mining Claim
Mining Claim
Boundary Claim
Alienation
Withdrawal
Notice
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Provincial Grid 250K
Provincial Grid 50K
Provincial Grid Group
Land Tenure
Surface Rights
Mining Rights
Mining and Surface Rights
Order-in-Council
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0.17 km
Projection: Web Mercator
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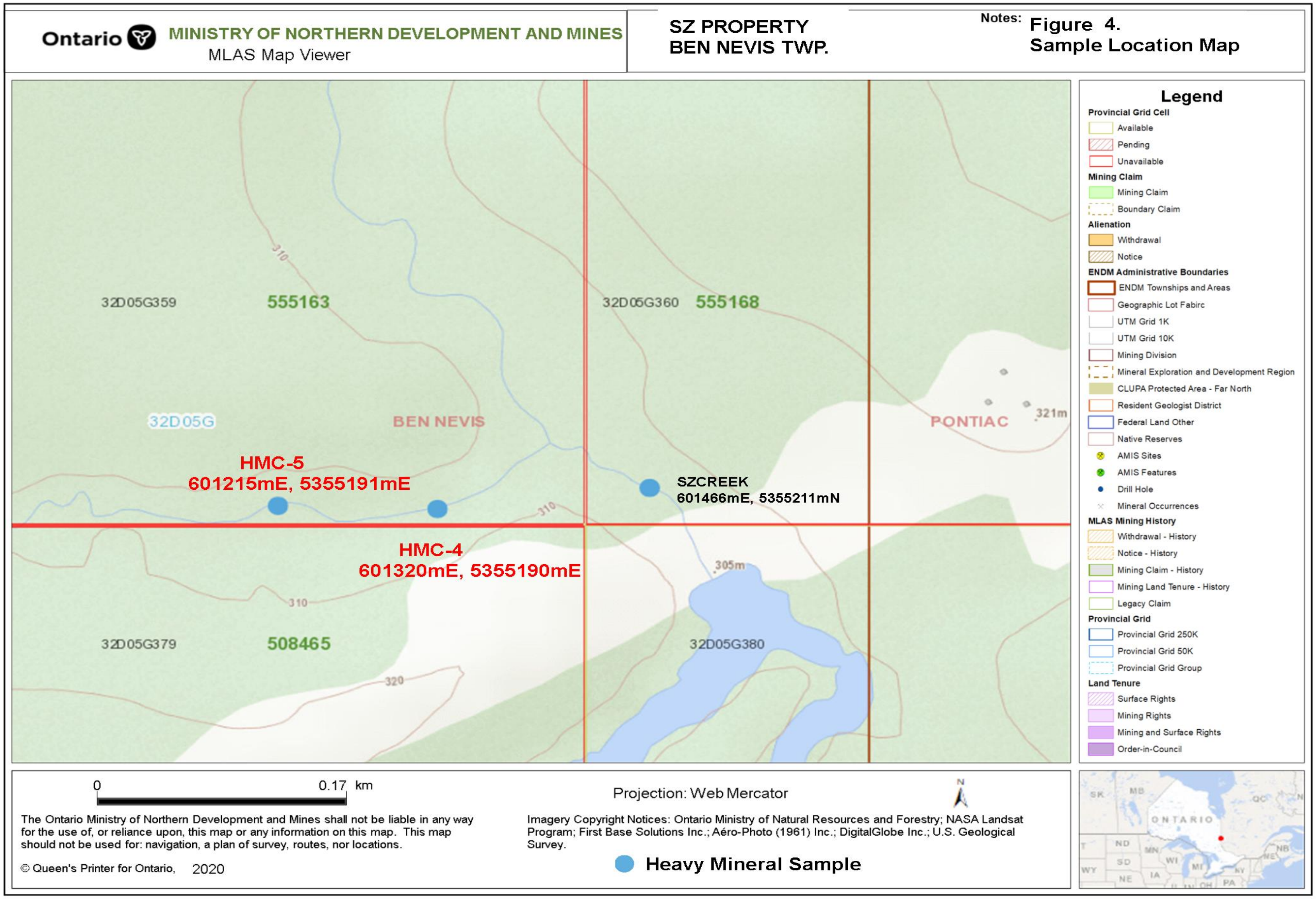
Heavy Mineral Sample
ONTARIO


Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ PROPERTY
BEN NEVIS TWP.
Notes:
Figure 4.
Sample Location Map
32D05G359
555163
32D05G360
555168
32D05G379
508465
32D05G380
32D05G
BEN NEVIS
PONTIAC
HMC-5
601215mE, 5355191mE
HMC-4
601320mE, 5355190mE
SZCREEK
601466mE, 5355211mN
310
320
305m
321m
Legend
Provincial Grid Cell
Available
Pending
Unavailable
Mining Claim
Mining Claim
Boundary Claim
Alienation
Withdrawal
Notice
ENDM Administrative Boundaries
ENDM Townships and Areas
Geographic Lot Fabirc
UTM Grid 1K
UTM Grid 10K
Mining Division
Mineral Exploration and Development Region
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AMIS Sites
AMIS Features
Drill Hole
Mineral Occurrences
MLAS Mining History
Withdrawal - History
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Mining Claim - History
Mining Land Tenure - History
Legacy Claim
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Provincial Grid 250K
Provincial Grid 50K
Provincial Grid Group
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Surface Rights
Mining Rights
Mining and Surface Rights
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Projection: Web Mercator
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Heavy Mineral Sample
ONTARIO

History of Exploration

In 1970, Amax Ltd. completed an airborne magnetometer and electromagnetic survey over northern sections of Ben Nevis Twp. (32D05SE0016)

In 1971, the geology of Clifford and Ben Nevis townships were mapped by L.S. Jenson on behalf of the Ontario Department of Mines. (G.R.132)

In 1973, McIntyre Porcupine Mines Limited completed ground magnetometer and electromagnetic surveys over their claim group in Dokis Township. The northeast section of the SZ Property is covered by part of the geophysical surveys. (32D05SE0025)

In 1974, W.J. Wolfe undertook a geochemical survey on rock samples collected in parts of Ben Nevis and Clifford townships with focus on nickel, copper and zinc. The survey was performed on behalf of the Ontario Division of Mines. (P.915, P.916, P.917)

In 1975, the geology of Pontiac and Ossian townships was mapped by L.S. Jenson on behalf of the Ontario Department of Mines. (G.R.125)

In 1979, the Ontario Geological Survey flew electromagnetic and total intensity magnetic surveys over the Kirkland Lake area which included Ben Nevis (P.2254) and Pontiac (P.2255) townships. The surveys were conducted by fixed-wing aircraft on flight lines spaced 150 metres apart and flown at mean terrain clearance of 400 feet.

In 1986, Walker Exploration Ltd. carried out a ground magnetometer survey over a 21 claim group located in the northeast section of Ben Nevis Twp. The survey was performed on east-west orientated grid lines. The survey was completed on behalf of Lac Minerals Ltd. The west section of the SZ Property covers part of this survey. (32D05SE0043)

In 1988, McAdam Resources Inc. completed ground magnetometer, VLF, Induced Polarization and geological surveys along the Killamey Road. The southeast section of the SZ Property covers some of the area surveyed.

In 1990, Joutel Resources Ltd. flew an airborne survey over the north section of Ben Nevis Twp. The airborne survey included: total magnetics, gradient magnetics, apparent resistivity and VLF – electromagnetics. The surveys were completed by helicopter on flight lines spaced 150 metres apart and flown at a mean terrain clearance of 60 metres. The south section of the SZ Property covers part of the area surveyed. (32D05SE0007)

In 1992, geologist Vital Pearson mapped geology in central and northeast areas of Ben Nevis Twp. His work was performed on behalf of Minnova Inc. The southeast section of SZ Property covers part of the geology survey. (32D05SE0071, 32D05SE0023)

In June of 2019, property owner Jim Chard sampled gravels in a creek located in cell 32D05G360. This work lead to the discovery of Cr-rich green garnets potentially associated with a kimberlite. As a result, additional claims were staked including claim 555168 to cover the sample site.

Regional and Property Geology

The SZ Property is situated in Kirkland Lake section of the Abitibi Greenstone Belt. Regionally, the property is situated on the upper limb and close to the axis of a large east-west orientated synclinal structure. The property is underlain by mafic and intermediate metavolcanic units belonging to the Upper Blake River Formation dated 2704 to 2696 Ma. These units consist of basalt, andesite and dacite. Locally, the property has been intruded by Archean felsic intrusive rocks consisting of granodiorite stocks and Proterozoic aged diabase dikes. Structurally, rock units on the property trend northeast-southwest and dip moderate to steeply southeast. The property is crossed by the Kirkland Lake - Murdoch Creek - Kennedy Lake Fault System. The fault strikes northeast-southwest across the south section of the property. Kimberlites occur in proximity to this fault in Arnold and Clifford townships.

Survey Dates and Personnel

Heavy mineral samples were collected on the property on August 23, August 25 and August 26, 2019. Five samples were collected during this time. The samples were collected by property owners,: Robert Dillman, Jim Chard and Jim Renaud.

The samples was processed for heavy minerals and examined by microscope in September and October, 2019 by Robert Dillman at his facilities in Mount Brydges, Ontario.

Minerals selected from the heavy mineral concentrate were submitted for mounting and electron microprobe analyses by Dr. Jim Renaud at his facilities in London, Ontario. This work was completed at various times in December 2019.

Survey Logistics

Sample logistics are summarized in Table 1. All samples were collected using a shovel. Samples were screened at the sample site using a 1.0 cm mesh screen to remove large rocks and collected in white grain bags for transport. Approximately 10 litres of gravel was collected at each site.

Heavy minerals were extracted from the gravels using a combination of gravity settling and density liquid techniques (Figure 4). At the lab, the sample was screened down further using a 1.0 mm mesh sieve. The –1.0 mm fraction which passed through the sieve was fed into a Innex cable jib equipped with a No. 80 Tyler sieve (180 microns). With the jig running, this screen forms a crude heavy mineral concentrate and removes fine silt and clay from the sample. The -1.0 mm heavy mineral concentrate from the jig is dried and magnetite grains, which are ubiquitous in most heavy mineral concentrates are removed using a magnetic tray. The non-magnetic -1.0 mm concentrate is refined to a minimum specific gravity of 2.95 using Lithium Metatungstate, a reusable density liquid designed for sediment separation. The +2.95 sp.g. fraction was examined by binocular microscope for kimberlite indicator minerals and other minerals of interest. Mineral concentrates examined under the microscope ranged 40.4 to 143.0 grams in size. A total of 456.5 g of material was examined under the microscope. A total of 190 mineral grains were selected for electron microprobe analyses.

The selected grains were organized by mineral species and grain size and mounted on glass slides and polished. The polished sections were carbon coated and examined in transmitted and reflected light with a Zeiss Axioscope petrographic microscope. Samples were examined in detail using RGC's new Oxford Instruments Energy Dispersive System (EDS) on the microprobe and relevant minerals analyzed using the wavelength spectrometers. Backscattered electron detector images of relevant and interesting mineralogical and textural relationships were collected digitally and are appended to this report. The scale bar is located below each backscatter image to help evaluate the grain sizes of the various minerals. All minerals were analyzed using a JEOL JXA 733 electron microprobe equipped with an Oxford Instruments EDS and five wavelength spectrometers. Analyses of clinopyroxene, Cr-amphibole, Pyrope-Almandine garnet, green garnets, olivine/serpentine, and ilmenite are appended to this report.

Table 1.
Heavy Minerals Sample Logistics
SZ Property, Ben Nevis Twp., Ontario

Sample Number	UTM Coordinates	Type	Amount Examined	Magnetic Fraction	Total Concentrate	Notes
HMC-1	599637mE 5335552mN	Till	69.1 g	6.1 g	75.2 g	Boulder till on bedrock.
HMC-2	599594mE 5355204mN	Stream	40.1 g	0.4 g	40.5 g	Large rocks in creek. Small sample.
HMC-3	599628mE 5355236mN	Till?	78.4 g	7.1 g	85.5 g	Sandy, rusty hardpan.
HMC-4	601320mE 5355190mN	Stream	108.6 g	3.7 g	112.3 g	Gravel to large boulders. Good site.
HMC-5	601215mE 5355191mN	Stream	137.5 g	5.5 g	143.0 g	Gravel to large boulders. Good site.

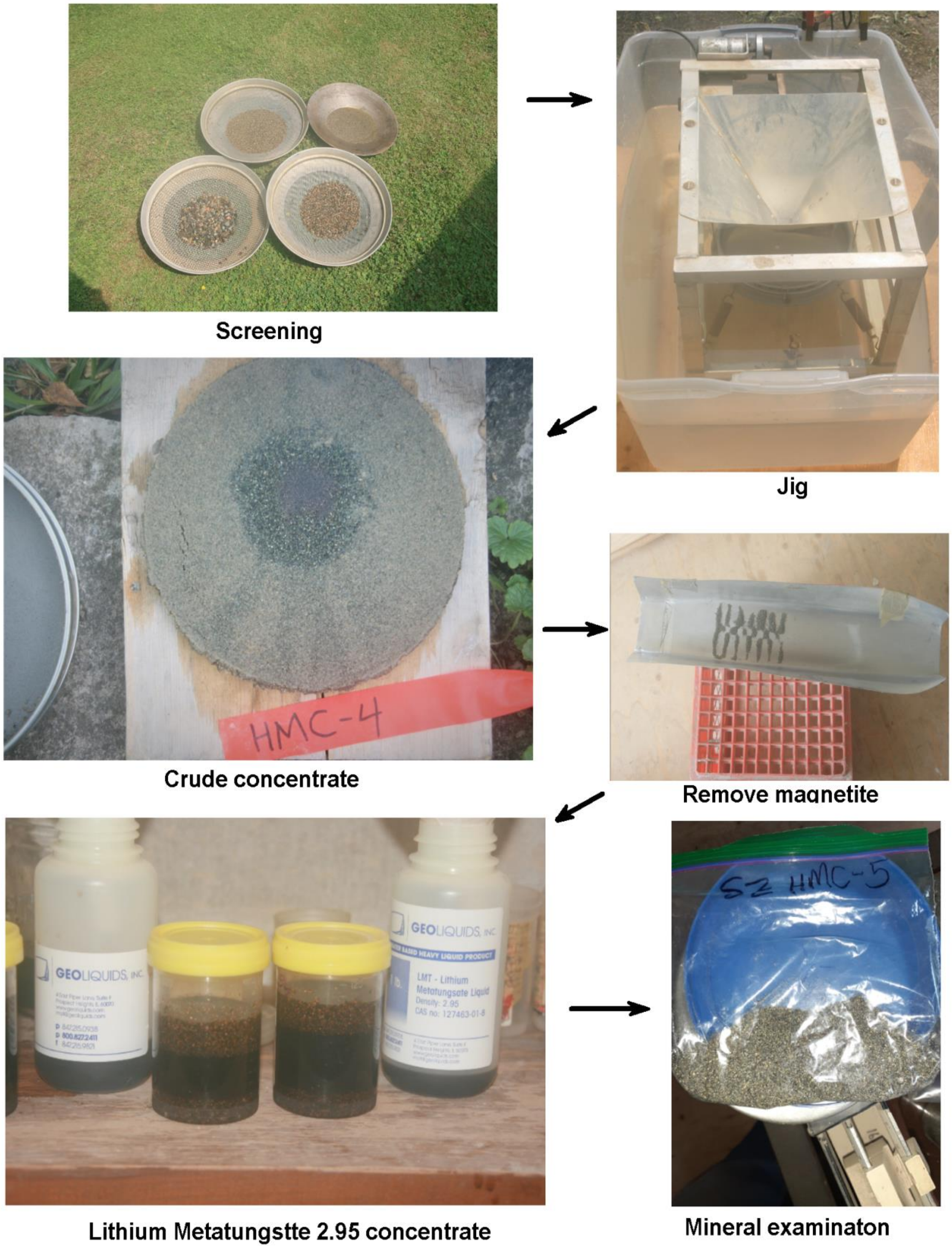


Figure 5. Method of Concentration

Figure 6. JEOL JXA-733 Superprobe equipped with 5 wavelength spectrometers and an Oxford Instruments Xact Energy Dispersive System housed at the laboratory of Renaud Geological Consulting Ltd.

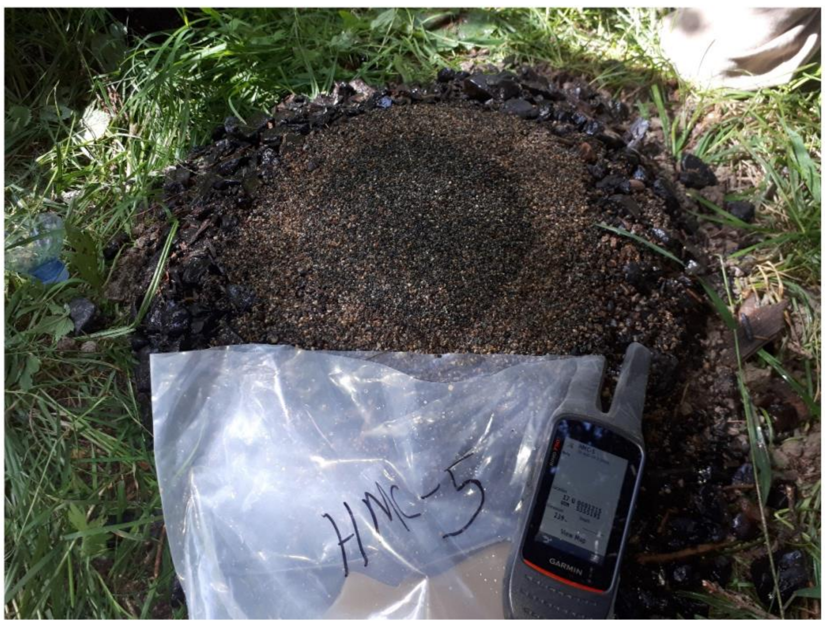


Figure 7. HMC-5 Sample Site
601215mE, 5355191mN
Claim: 555163, Cell: 32D05G359

Figure 8a. HMC-1 Sample Site
599637mE, 5355552mN
Claim: 554440, Cell: 32D05G356

Figure 8b. HMC-1 Sample Site
599628mE, 5355236mN
Claim: 554440, Cell: 32D05G356

Survey Results

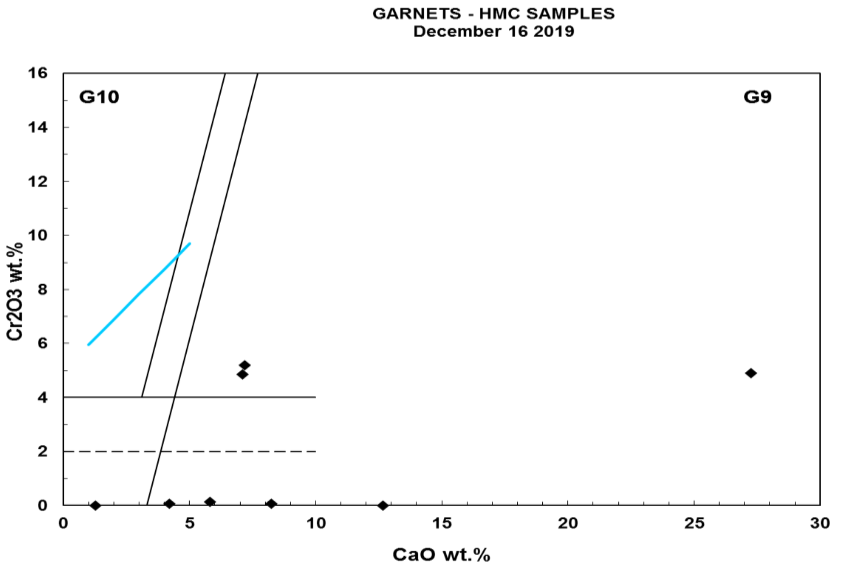
Kimberlite indicator minerals were identified in the heavy mineral concentrates. Table 2. summarizes the results. The kimberlite minerals include: G9 pyrope garnet, chrome diopside, chromite and possible indicator minerals of: olivine, Cr-clinopyroxene, green Cr-rich garnets/ uvarovite and pyrope-almandine garnet

Graphical representation of the mineral chemistry is presented below. The purpose of this discussion is to review the salient aspects of the compositional variation of these indicator minerals with speculation as to how this compositional variation might have a bearing on the diamond potential of the property.

Table 2.
Results of Heavy Mineral Sampling, SZ Property. Ben Nevis Twp.,

	Kimberlite Minerals				**Potential Kimberlite Minerals**						
Sample Number	**Pyrope**	**Cr-diopside**	**Chromite**	**Mg-ilmenite**	**Green garnet uvarovite**	**Eclogite garnet**	**Pyrope-almandine**	**Olivine**	**Cr Opx**	**Cr Cpx**	**Notes**
HMC-1	--	1	--	--	1	--	1	--	--	1	
HMC-2	--	--	--	--	1	--	--	--	--	--	
HMC-3	--	--	--	--	2	--	--	--	--	1	
HMC-4	2 G9	--	2	--	--	--	3	--	--	2	-brown sphene
HMC-5	1 G9	--	--	--	3	--	2	4	1	--	-brown sphene

Garnet:



A total of 8 garnets were recovered from samples HMC-1, HMC-4, and HMC-5. The 8 garnets were plotted in terms of calcium and chrome which is basically a standard Gurney plot modified by Jennings and Grutter with more lines added to better define domains in the G10 field. The dark horizontal line at 4.00wt% Cr2O3 defines fields of chrome-pyrope above the line from eclogitic garnets below the line. Note that the northeast trending line which intersects the X-axis is actually the G9-G10 line originally defined on the more simplified Gurney Plot. The blue NE-SW trending line (left center of graph) is the Grutter line which is believed to separate more prospective pyrope garnets above the line and less prospective garnets below the line.

Inspection of the CaO vs Cr2O3 plot reveals two Cr-pyrope garnets to the right of the so-called Lherzolite trend first defined by Sobolev and subsequently Gurney. Note that the chrome-pyrope data point falls within the G9 field. These two data points belong to sample HMC-4 grains 1 and 2. The points falling along the x-axis of the graph belong to samples HMC-1, HMC-4, and HMC-5. These points represent pyrope-almandine garnets. Interestingly, almandine-pyrope inclusions within natural diamond have been described by Sobelev et al. (1971) from the Urals and by Gurney et al. (1979) from the Finsh Pipe, South Africa. Interestingly, there is one data point that stands out among the rest. It is a green garnet belonging to sample HMC-5 grain 10. It's composition has a calcium component of 27.26wt% CaO which falls in the miscibility gap between pyrope-grossular. This grain is discussed below within the green garnet section along with uvarovites from this sample.

Green Garnets:

The green garnets from the HMC samples consist of both uvarovite with greater than 30 wt% CaO and miscibility gap green garnets with calcium contents of 27.26 wt% CaO. The uvarovites belong to samples HMC-2 (grain 1), HMC-3 (grains 5 and 6), and HMC-5 (grains 1, 11 , and 13). The green garnet which falls within the miscibility gap belongs to sample HMC-5 (grain 10).

Uvarovite is a member of the ugrandite series and is dominantly the grossular molecule with minor amounts of the andradite molecule entering into solid solution with the uvarovite molecule. The uvarovites are defined as having less than 10 percent of the andradite molecule. Because of the solid solution between uvarovite and grossular, many green garnets are termed uvarovites when in reality they are Cr-grossulars (Deer et al., 1997).

In the world of green garnets, the uvarovites form the right most portion of the miscibility gap between pyrope and uvarovite. There are other types of green garnets which occasionally occur in concentrates of diamondiferous kimberlite bodies in Yakutia (Udachnaya, Aykhal, Mir, Dalnaya), South Africa (Newlands, Bultfontein, Kampfersdam), Venezuela (Guaniamo sills), and Canada (Mud Lake field). These green garnets fall within the miscibility gap (~24 wt% CaO). Clarke and Carswell (1977) have offered four models of formation of such garnets at great depths. **1)** The green garnets are part of a "normal", essentially undepleted, mantle peridotite assemblage at great depths (probably >350 km), and have been brought to the surface as accidental xenocrysts in kimberlitic magma. **2)** The green garnets have formed as part of the refractory residuum during a deep-level (probably >350 km) partial melting event. **3)** The green garnets are the products of fractional crystallization of magma (not necessarily strictly kimberlitic) produced by the partial melting of mantle peridotite at depths > 250 km. **4)** The green garnets have been derived from disaggregated garnet wehrlite xenoliths formed by subsolidus recrystallization of original spinel wehrlite assemblages (abundant olivine + minor chrome diopside and chrome spinel). **5).** It is supposed also (Schulze, 1986), that kimberlitic green garnets may have originated through subduction and prograde metamorphism of uvarovite bearing crustal serpentinites.

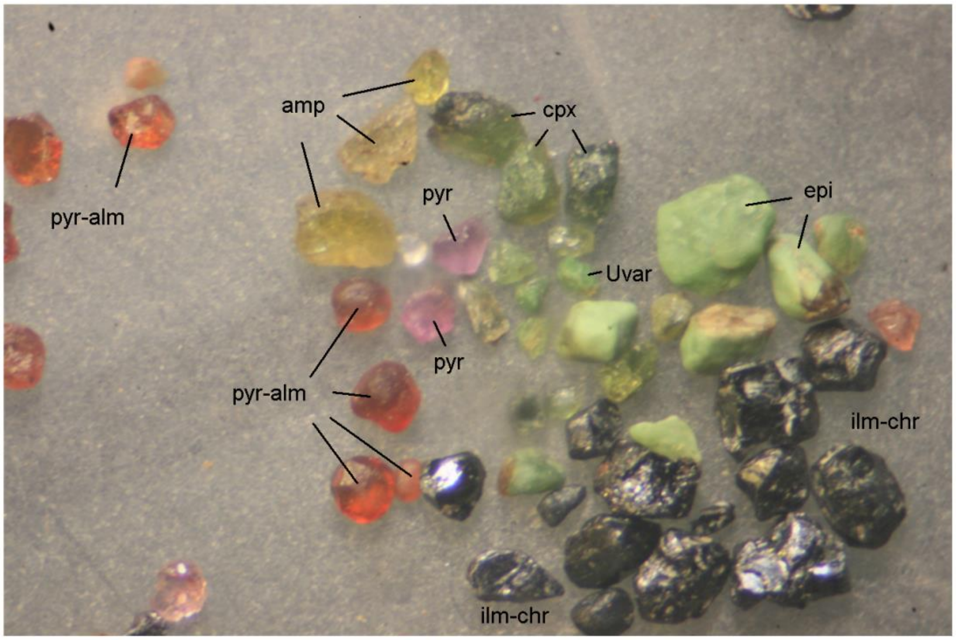
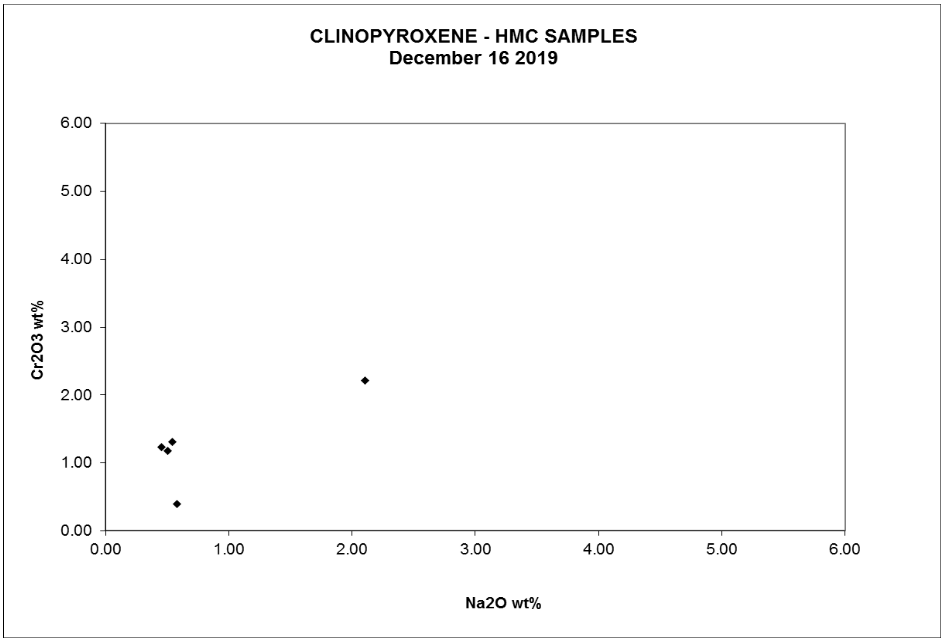


Figure 9a.
HMC-4
G9 pyrope garnet
pyrope-almandine
garnet
green Cr-garnets
clinopyroxene
amphibole
ilmenite
chromite
epidote

Figure 9b.
HMC-5
G9 pyrope garnet
green Cr-garnets
galena
sphene
olivine

Clinopyroxene:

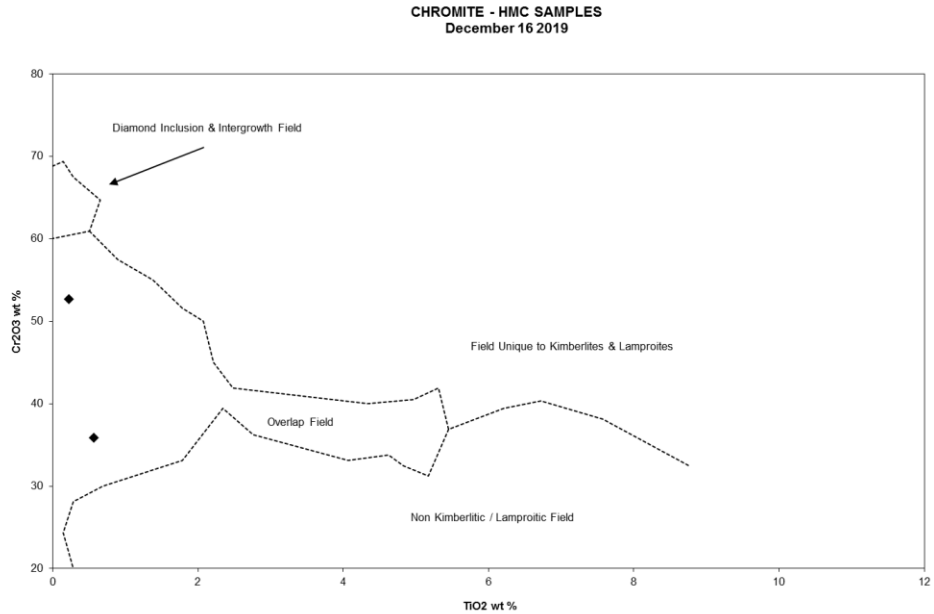


A total of 5 clinopyroxenes were recovered from samples HMC-1 (grains 1 and 2), HMC-3 (grain 1), and HMC-4 (grains 8 and 10). Clinopyroxene analyses are plotted below in terms of sodium versus chrome. The grains are essentially a combination of augite and chrome diopside. The augite grains define a nearly vertical trend on the graph closest to the y-axis. In general, chrome diopside grains will define a linear diagonal cluster representing a 1:1 Na-Cr ratio. It is suspected that grains within this cluster were derived from a certain population of mantle nodules. There is a one particular grain on the plot with an elevated Na-Cr content of 2.11:2.21 wt% which belongs to sample HMC-1 (grain 1). This trend toward increasing sodium and chrome defines an increasing substitution of the ureyite molecule into the diopside structure. This substitution is generally considered to be a function of ever-increasing pressure. As such, this chrome diopside with elevated Na:Cr is considered to have been derived from a relatively deep source in the diamond-bearing upper mantle.

Orthopyroxene:

The concentrate examined contained 1 orthopyroxene belonging to sample HMC-5 (grain 5). This grain has a magnesium content of 31.17 wt% MgO. This grain also has a chrome content of 0.21 wt% Cr_2O_3. This magnesium and chrome composition is consistent with the possibility that it was derived from a mantle nodule.

Chromite:



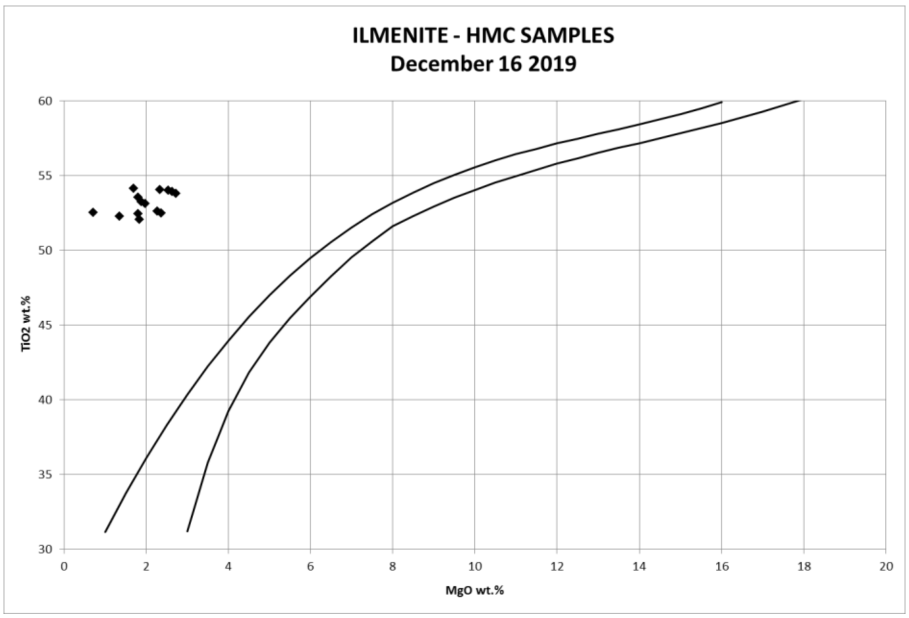
There were two chromite grains recovered from sample HMC-4 (grains 12 and 15). The two chromite grains are plotted in terms of titanium versus chrome. The data points contain 35.83 and 52.67 wt% Cr2O3. These compositions plot within the "overlap field" of the TiO2 vs Cr2O3 diagram, a field encompassing overlap in compositions of various lithology's.

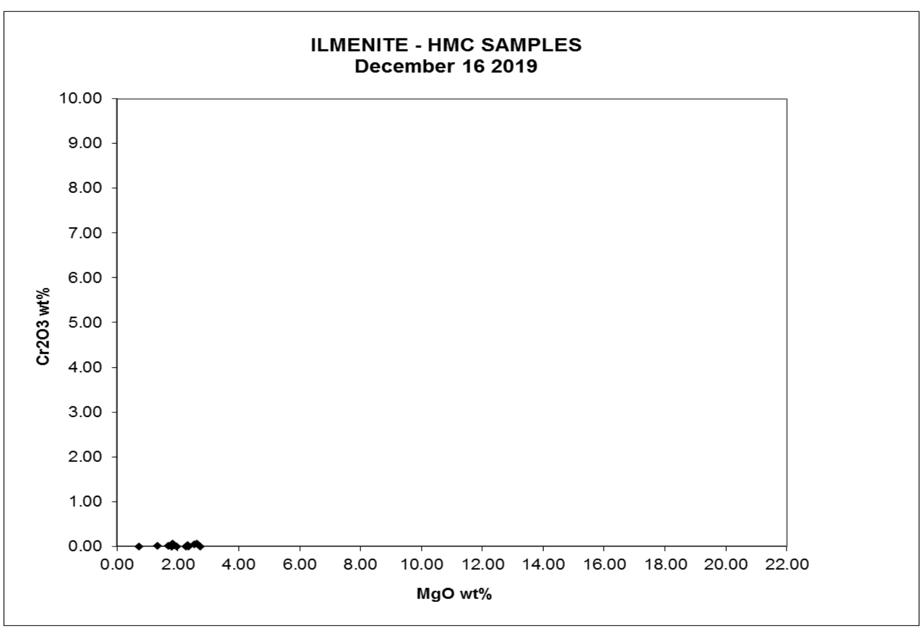
Olivine:

The large size fraction from sample HMC-5 (grains 19, 20, 22, and 24) concentrates consisted of four olivines with a magnesium content 17.02-26.77 wt% MgO. These compositions are low in Mg and have a forsterite content of between 37.10-54.40 Fo and a nickel content of 0.00-0.02 wt% NiO. These olivine compositions are not considered indicators and may represent grains from a mafic intrusion.

Ilmenite:

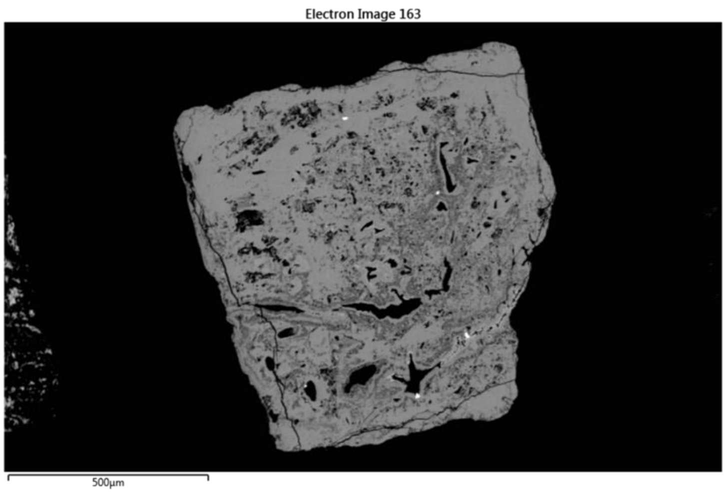
There were 14 ilmenites recovered from samples HMC-1, HMC-2, and HMC-4). The MgO vs TiO2 plot provided illustrates arcuate trends (black lines) that define ilmenite trends of kimberlitic picroilmenites from around the world. The ilmenites from the HMC concentrates do not follow these arcuate trends and would therefore be considered not prospective. The MgO vs Cr2O3 ilmenite plot shows a cluster of compositions on the bottom left of the graph. The plot illustrates the low Mg-Cr compositions of the grains suggesting derivation from a more crustal source.





Non-indicators:

The grains that were not analyzed from the HMC concentrates were characterized utilizing the EDS system on the microprobe. The following non-indicators were identified: amphibole, simple ilmenites, Fe-silicates, sphene, epidote, pyrite, chalcopyrite, spessartine-almandine solid solution, corundum, grossular-almandine solid solution, magnetite, chlorite, staurolite, quartz, albite, Ti-magnetite, biotite, apatite, rutile, and Cr-pumpellyite.



To the left is a backscatter image of grain HMC-5 grain 7 consisting of monazite - magnetite with minor Fe-silicate alteration and five bright inclusions of Y-Dy-Gd-phosphate.   The same grain is in the image below.

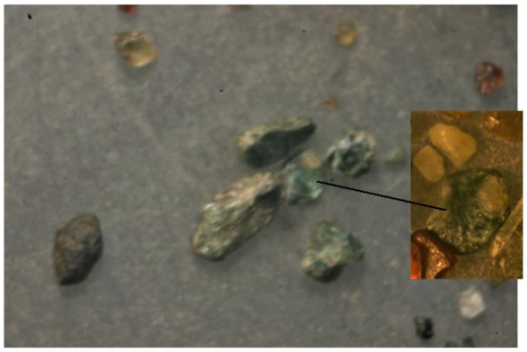


Figure 10a. Cr-Pumpellyite, HMC-5

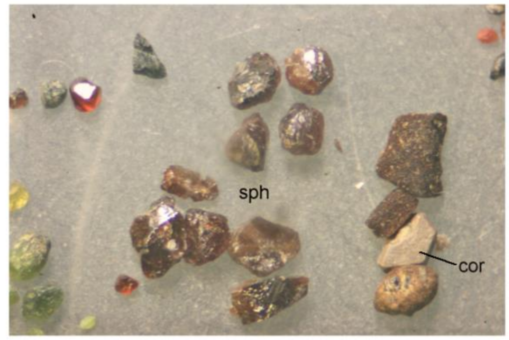
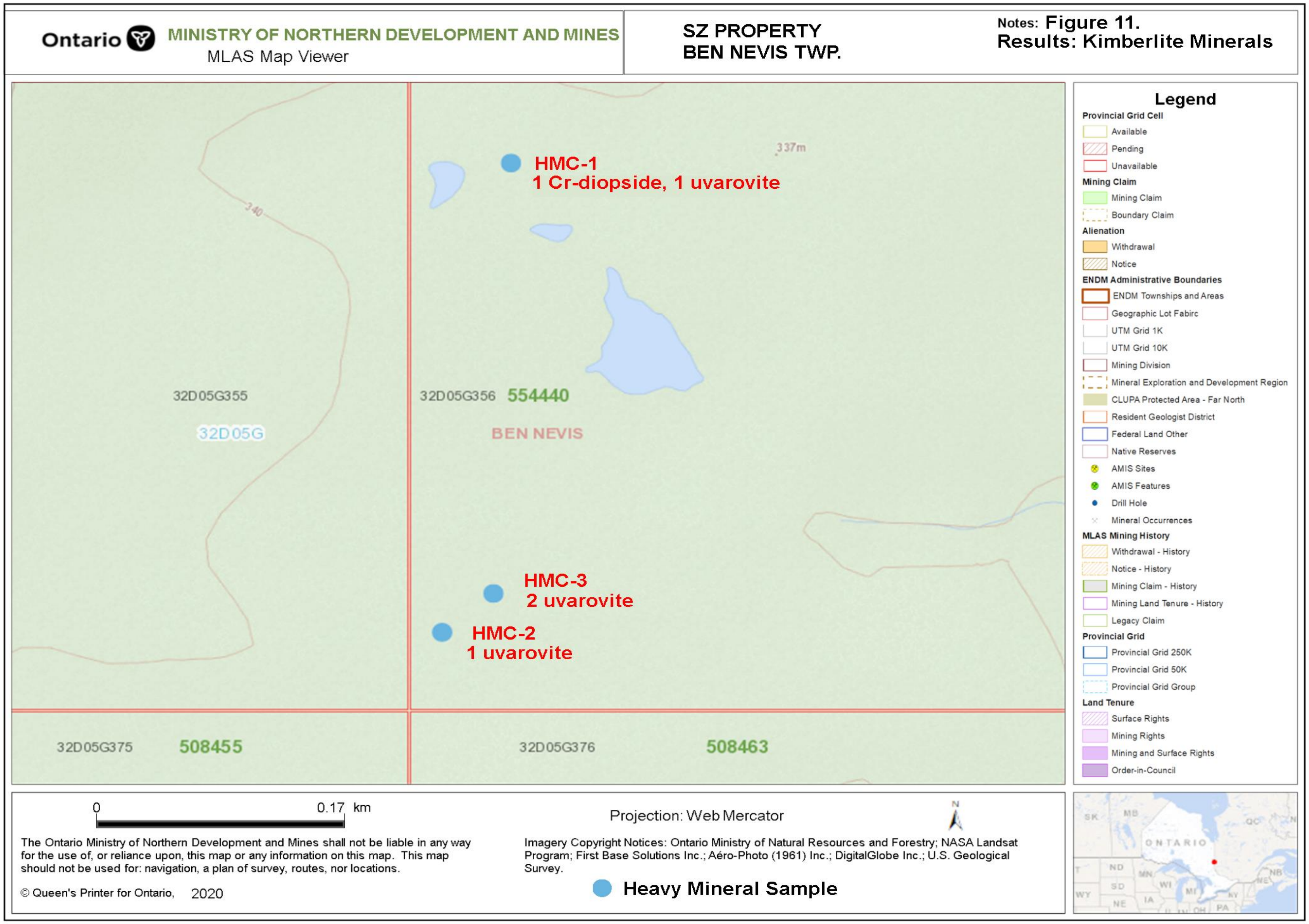


Figure 10b. Brown sphene, grey corrundum, HMC-4

Figure 10c. Small pyrite cubes, black Y-Dy-Gd-phosphate monazite-magnetite, HMC-5

Figure 10d. Epidote, uvarovite garnets, ilmenite, almandine garnet, galena, HMC-5

Figure 10e. Hematite + pyrite bearing sheared + carbonated rock fragments, quartz rock fragments in +1.0 cm fraction, HMC-4.



Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ PROPERTY
BEN NEVIS TWP.
Notes: Figure 11.
Results: Kimberlite Minerals
HMC-1
1 Cr-diopside, 1 uvarovite
HMC-3
2 uvarovite
HMC-2
1 uvarovite
337m
340
32D05G355
32D05G
32D05G356
554440
BEN NEVIS
32D05G375
508455
32D05G376
508463
Legend
Provincial Grid Cell
Available
Pending
Unavailable
Mining Claim
Mining Claim
Boundary Claim
Alienation
Withdrawal
Notice
ENDM Administrative Boundaries
ENDM Townships and Areas
Geographic Lot Fabirc
UTM Grid 1K
UTM Grid 10K
Mining Division
Mineral Exploration and Development Region
CLUPA Protected Area - Far North
Resident Geologist District
Federal Land Other
Native Reserves
AMIS Sites
AMIS Features
Drill Hole
Mineral Occurrences
MLAS Mining History
Withdrawal - History
Notice - History
Mining Claim - History
Mining Land Tenure - History
Legacy Claim
Provincial Grid
Provincial Grid 250K
Provincial Grid 50K
Provincial Grid Group
Land Tenure
Surface Rights
Mining Rights
Mining and Surface Rights
Order-in-Council
0
0.17 km
Projection: Web Mercator
N
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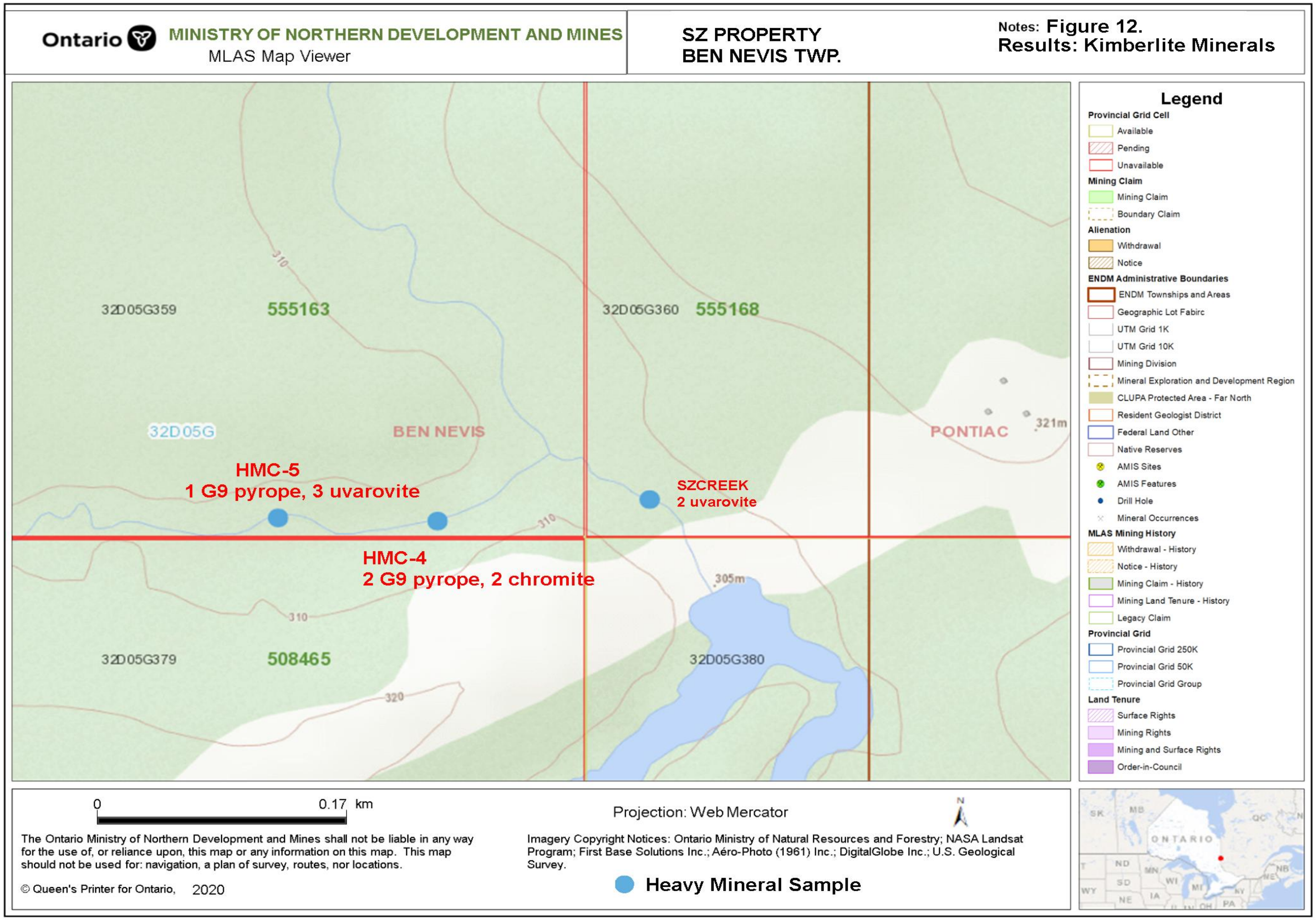
Heavy Mineral Sample
ONTARIO


Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ PROPERTY
BEN NEVIS TWP.
Notes: Figure 12.
Results: Kimberlite Minerals
32D05G359
555163
32D05G360
555168
32D05G
BEN NEVIS
PONTIAC
321m
310
HMC-5
1 G9 pyrope, 3 uvarovite
SZCREEK
2 uvarovite
HMC-4
2 G9 pyrope, 2 chromite
305m
310
32D05G379
508465
32D05G380
320
Legend
Provincial Grid Cell
Available
Pending
Unavailable
Mining Claim
Mining Claim
Boundary Claim
Alienation
Withdrawal
Notice
ENDM Administrative Boundaries
ENDM Townships and Areas
Geographic Lot Fabirc
UTM Grid 1K
UTM Grid 10K
Mining Division
Mineral Exploration and Development Region
CLUPA Protected Area - Far North
Resident Geologist District
Federal Land Other
Native Reserves
AMIS Sites
AMIS Features
Drill Hole
Mineral Occurrences
MLAS Mining History
Withdrawal - History
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Mining Claim - History
Mining Land Tenure - History
Legacy Claim
Provincial Grid
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Mining and Surface Rights
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Projection: Web Mercator
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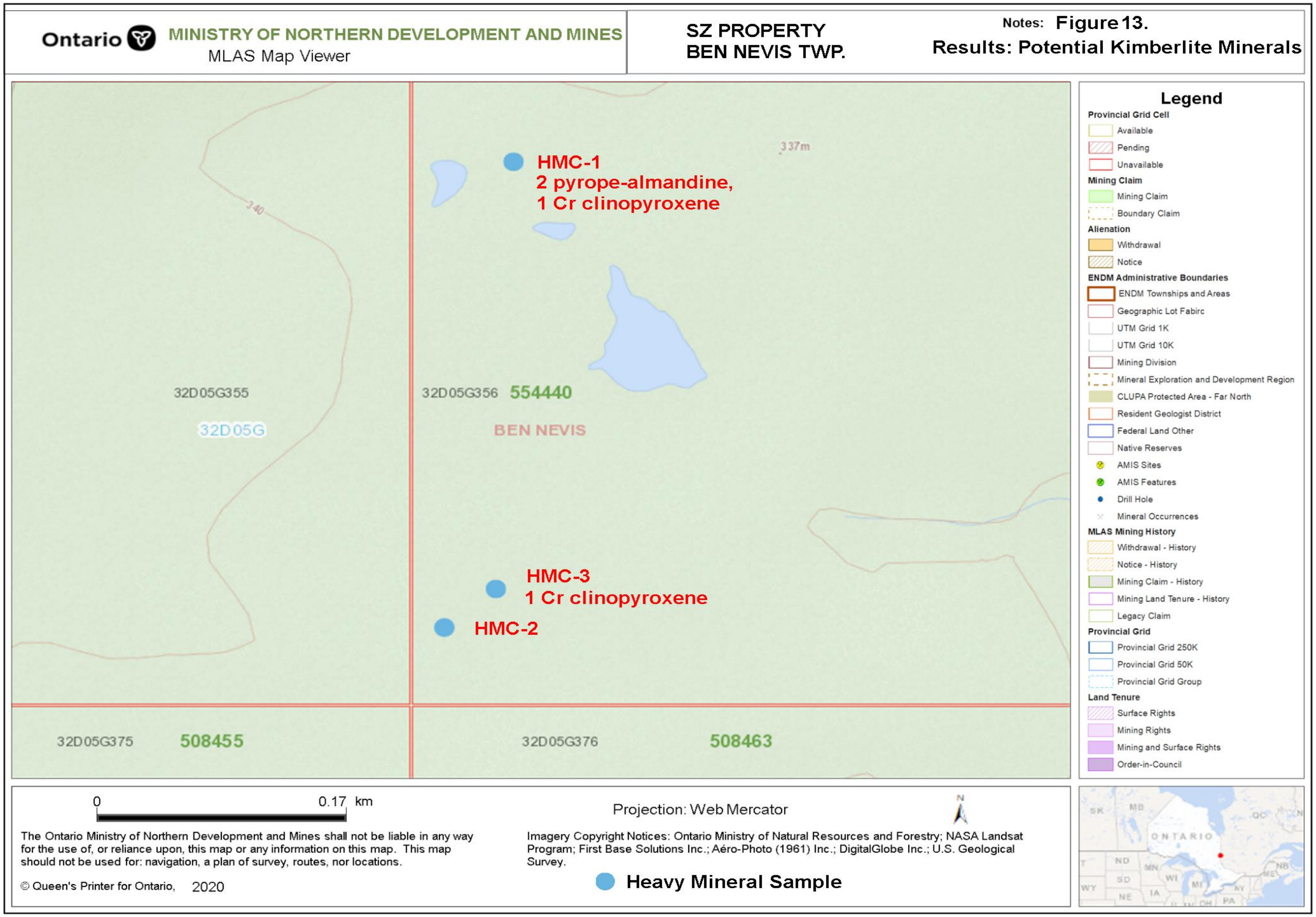
Heavy Mineral Sample
ONTARIO


Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ PROPERTY
BEN NEVIS TWP.
Notes: Figure 13.
Results: Potential Kimberlite Minerals
HMC-1
2 pyrope-almandine,
1 Cr clinopyroxene
HMC-3
1 Cr clinopyroxene
HMC-2
337m
340
32D05G355
32D05G
32D05G356
554440
BEN NEVIS
32D05G375
508455
32D05G376
508463
Legend
Provincial Grid Cell
Available
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Unavailable
Mining Claim
Mining Claim
Boundary Claim
Alienation
Withdrawal
Notice
ENDM Administrative Boundaries
ENDM Townships and Areas
Geographic Lot Fabirc
UTM Grid 1K
UTM Grid 10K
Mining Division
Mineral Exploration and Development Region
CLUPA Protected Area - Far North
Resident Geologist District
Federal Land Other
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AMIS Sites
AMIS Features
Drill Hole
Mineral Occurrences
MLAS Mining History
Withdrawal - History
Notice - History
Mining Claim - History
Mining Land Tenure - History
Legacy Claim
Provincial Grid
Provincial Grid 250K
Provincial Grid 50K
Provincial Grid Group
Land Tenure
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Projection: Web Mercator
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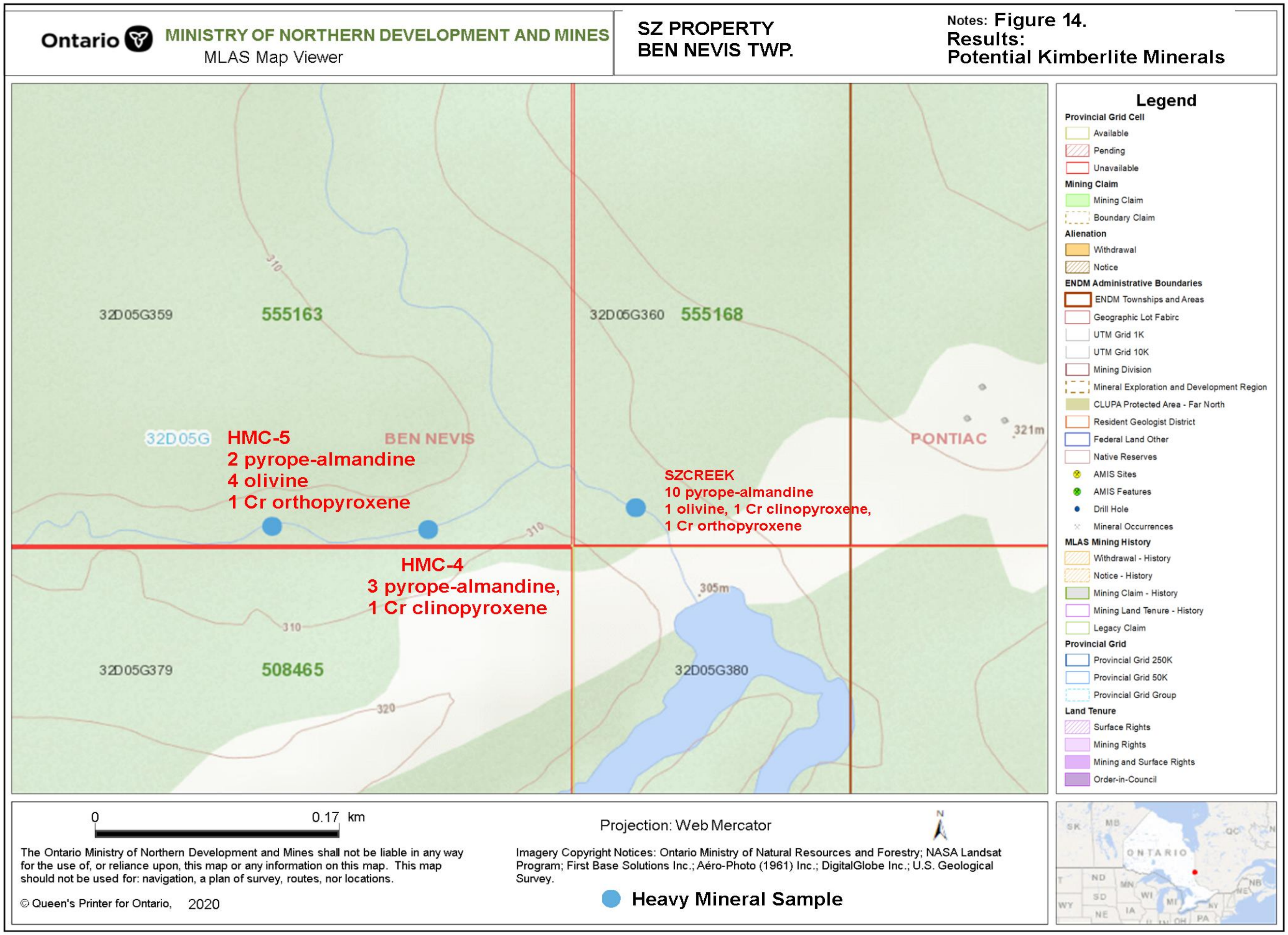
Heavy Mineral Sample
ONTARIO


Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ PROPERTY
BEN NEVIS TWP.
Notes: Figure 14.
Results:
Potential Kimberlite Minerals
32D05G359
555163
32D05G360
555168
32D05G379
508465
32D05G380
32D05G
BEN NEVIS
PONTIAC
321m
305m
310
320
HMC-5
2 pyrope-almandine
4 olivine
1 Cr orthopyroxene
HMC-4
3 pyrope-almandine,
1 Cr clinopyroxene
SZCREEK
10 pyrope-almandine
1 olivine, 1 Cr clinopyroxene,
1 Cr orthopyroxene
Legend
Provincial Grid Cell
Available
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Unavailable
Mining Claim
Mining Claim
Boundary Claim
Alienation
Withdrawal
Notice
ENDM Administrative Boundaries
ENDM Townships and Areas
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UTM Grid 10K
Mining Division
Mineral Exploration and Development Region
CLUPA Protected Area - Far North
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Drill Hole
Mineral Occurrences
MLAS Mining History
Withdrawal - History
Notice - History
Mining Claim - History
Mining Land Tenure - History
Legacy Claim
Provincial Grid
Provincial Grid 250K
Provincial Grid 50K
Provincial Grid Group
Land Tenure
Surface Rights
Mining Rights
Mining and Surface Rights
Order-in-Council
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Projection: Web Mercator
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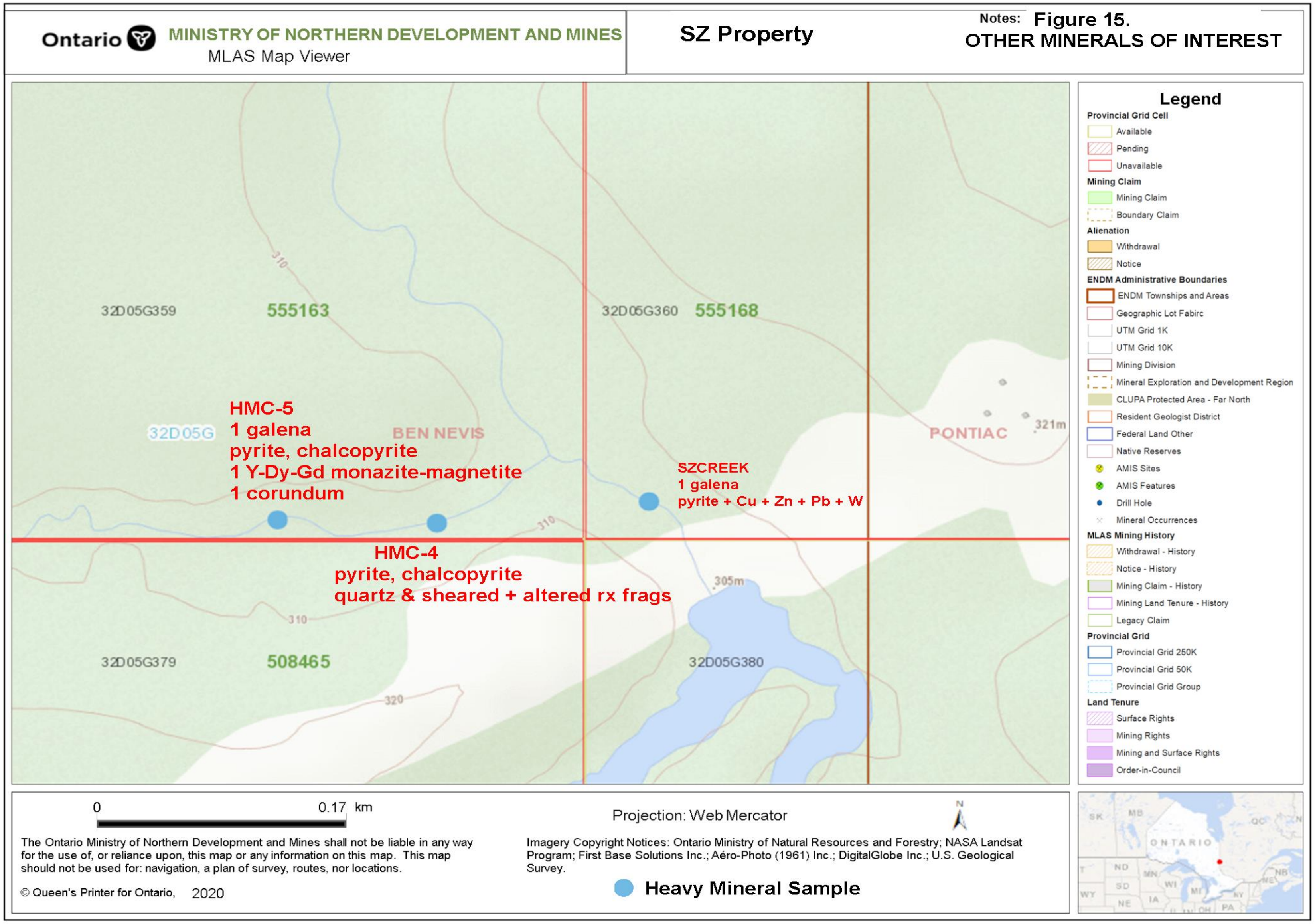
Heavy Mineral Sample
ONTARIO


Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ Property
Notes: Figure 15.
OTHER MINERALS OF INTEREST
32D05G359
555163
32D05G360
555168
32D05G379
508465
32D05G380
32D05G
BEN NEVIS
PONTIAC
321m
305m
310
320
HMC-5
1 galena
pyrite, chalcopyrite
1 Y-Dy-Gd monazite-magnetite
1 corundum
HMC-4
pyrite, chalcopyrite
quartz & sheared + altered rx frags
SZCREEK
1 galena
pyrite + Cu + Zn + Pb + W
Legend
Provincial Grid Cell
Available
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Unavailable
Mining Claim
Mining Claim
Boundary Claim
Alienation
Withdrawal
Notice
ENDM Administrative Boundaries
ENDM Townships and Areas
Geographic Lot Fabirc
UTM Grid 1K
UTM Grid 10K
Mining Division
Mineral Exploration and Development Region
CLUPA Protected Area - Far North
Resident Geologist District
Federal Land Other
Native Reserves
AMIS Sites
AMIS Features
Drill Hole
Mineral Occurrences
MLAS Mining History
Withdrawal - History
Notice - History
Mining Claim - History
Mining Land Tenure - History
Legacy Claim
Provincial Grid
Provincial Grid 250K
Provincial Grid 50K
Provincial Grid Group
Land Tenure
Surface Rights
Mining Rights
Mining and Surface Rights
Order-in-Council
0
0.17 km
Projection: Web Mercator
N
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Heavy Mineral Sample
ONTARIO

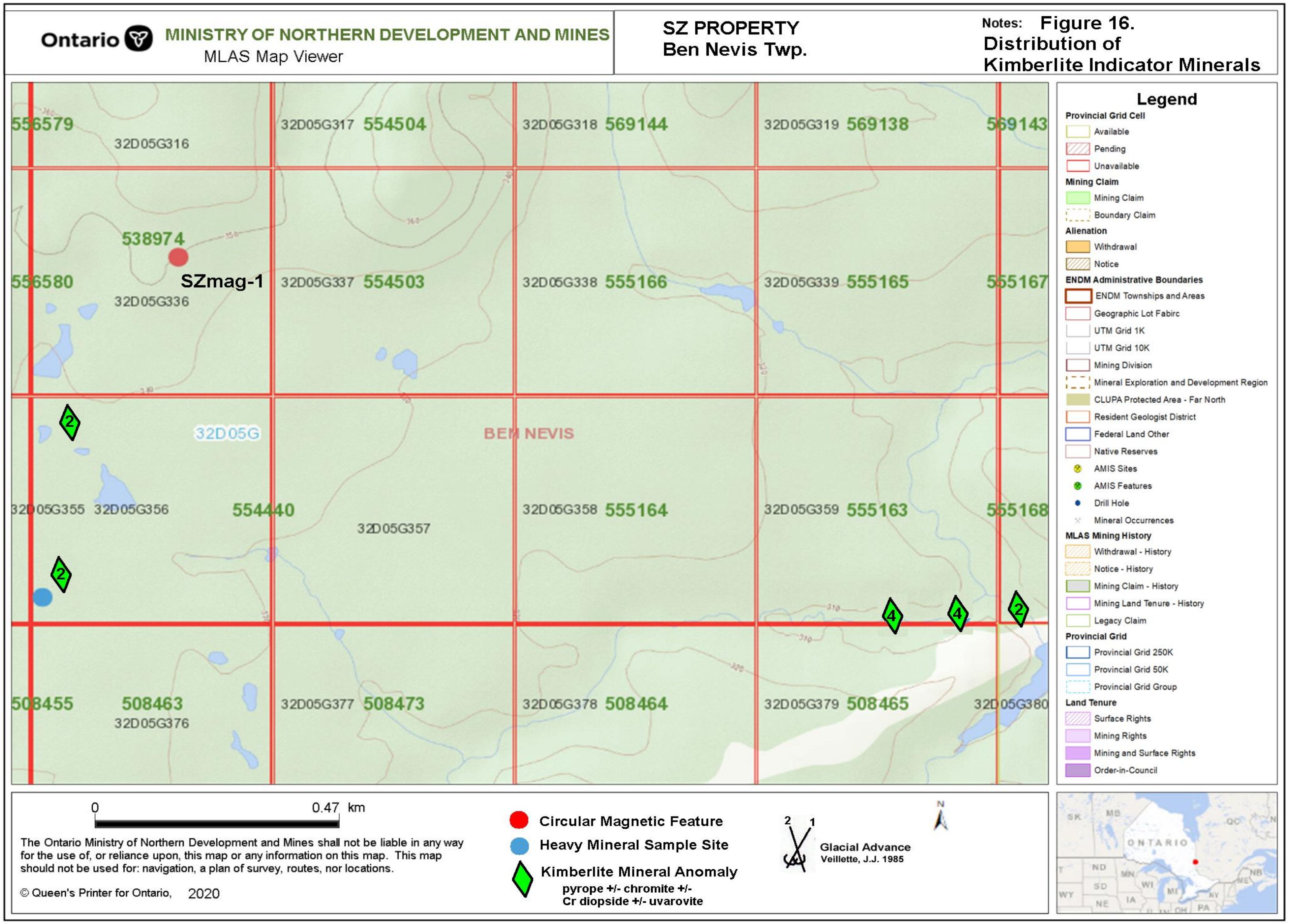
Discussion of Results

So far, the kimberlite indicator minerals found on the SZ Property are mostly concentrated in the stream samples collected in the southeast section of the property. We believe at this time, the minerals are being washed from glacial till surrounding the streams and concentrated with other minerals from the area such as: epidote, sphene, almandine garnet, galena, pyrite and Cr-pumpellyite. This would suggest a kimberlite source could lie somewhere north of the stream and potentially points towards the SZmag-1 magnetic feature as a potential kimberlite pipe (Figure 15). It should be noted that there has been at least two glacial advances in this section of Ontario, an initial advance from northeast to southwest and a second advance from northwest to southeast which was the most influential on the present landscape.

Samples HMC-4, HMC-5 and SZCREEK (taken prior to this report) have pyrite, chalcopyrite and galena grains mostly derived from mineralization occurring in close proximately to the sample sites. This section of the property is crossed by the Murdoch Creek – Kennedy Lake Fault. Rocks fragments of quartz and sheared material with pyrite and strong hematite + carbonate alteration found at the HMC-4 site indicate these sample sites are close to the fault. Green Cr-pumpellyite grains seen in these samples may also be associated with metamorphism associated with the fault.

Green epidote and brown sphene grains are common in all the samples. The minerals are most likely associated with or derived in proximity to several felsic intrusions situated on the property.

Corundum and rare earth bearing monazite-magnetite grains are two interesting minerals found by this survey. Both minerals were found in sample HMC-5 and each occurs as a fairly well-preserved crystal suggesting they are locally derived. Interestingly, the sample collected in the vicinity prior to this survey (SZCREEK) was found to contain tungsten bearing pyrite and magnetite grains.


Ontario
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
MLAS Map Viewer
SZ PROPERTY
Ben Nevis Twp.
Notes: Figure 16.
Distribution of
Kimberlite Indicator Minerals
556579
32D05G316
32D05G317 554504
32D05G318 569144
32D05G319 569138
569143
538974
SZmag-1
556580
32D05G336
32D05G337 554503
32D05G338 555166
32D05G339 555165
555167
32D05G
BEN NEVIS
32D05G355 32D05G356
554440
32D05G357
32D05G358 555164
32D05G359 555163
555168
508455
508463
32D05G376
32D05G377 508473
32D05G378 508464
32D05G379 508465
32D05G380
Legend
Provincial Grid Cell
Available
Pending
Unavailable
Mining Claim
Mining Claim
Boundary Claim
Alienation
Withdrawal
Notice
ENDM Administrative Boundaries
ENDM Townships and Areas
Geographic Lot Fabirc
UTM Grid 1K
UTM Grid 10K
Mining Division
Mineral Exploration and Development Region
CLUPA Protected Area - Far North
Resident Geologist District
Federal Land Other
Native Reserves
AMIS Sites
AMIS Features
Drill Hole
Mineral Occurrences
MLAS Mining History
Withdrawal - History
Notice - History
Mining Claim - History
Mining Land Tenure - History
Legacy Claim
Provincial Grid
Provincial Grid 250K
Provincial Grid 50K
Provincial Grid Group
Land Tenure
Surface Rights
Mining Rights
Mining and Surface Rights
Order-in-Council
0 0.47 km
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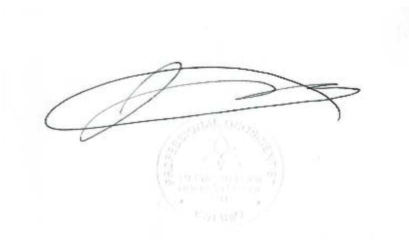
Circular Magnetic Feature
Heavy Mineral Sample Site
Kimberlite Mineral Anomaly
pyrope +/- chromite +/-
Cr diopside +/- uvarovite
Glacial Advance
Veillette, J.J. 1985
N
ONTARIO

Conclusion and Recommendations

Kimberlite indicator minerals have been found in heavy mineral concentrates derived from samples of glacial till and stream gravels collected on the SZ Property. Samples also contain grains of sulphides. Additional heavy mineral sampling, prospecting, geological and ground geophysical surveys consisting of magnetometer and VLF are recommended to find the sources of the kimberlite minerals and sulphide grains.

Respectfully submitted,



Dr. Jim Renaud

and,

Robert Dillman B.Sc., P.Geo.

January 29, 2020.

Dr. Jim A. Renaud, P.Geo, Ph.D
Renaud Geological Consulting Ltd.
21272 Denfield Rd, London, Ontario, Canada, N6H 5L2
renaudgeological@execulink.com

CERIFICATE of AUTHOR

I, Jim A. Renaud, **Professional Geologist**, do certify that:

1. I am the President and the holder of a Certificate of Authorization for:

   Renaud Geological Consulting Ltd.
   21272 Denfield Rd
   London, Ontario, Canada,
   N6H 5L2

2. I am President and CEO of Renaud Geological Consulting Ltd.;

3. That I have the degree of Bachelor of Science (Chemistry and Geology), 1999, from Western University; the degree of Honors Standing in Geology, 2000, from Western University; Masters of Science (Economic Geology), 2003, from Western University; and Doctor of Philosophy in Geology, 2014, from Western University;

4. I am an active member of:
   Association of Professional Geoscientists of Ontario, PGO, #2211

5. I have been a licensed Prospector in Ontario since 2000;

6. I have worked continuously as a Geologist for 18 years;

7. That I am a joint author of this report on the HMC till sampling;

8. That I am jointly responsible for all sections of the Technical Report;

9. I have visited the SZ Property for 4 days between August 23 and August 26, 2019

10. That, as of the date of this certificate, to the best of my knowledge, information and belief, the report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading;

11. I hereby consent to the filing of the report

Dated at London, Ontario, Canada
This 29th day of January, 2020
Jim A. Renaud, Ph.D., P.Geo.

Robert J. Dillman P.Geo, B.Sc.
ARJADEE PROSPECTING
8901 Reily Drive, Mount Brydges, Ontario, Canada, N0L1W0
Phone/ fax (519) 264-9278

CERIFICATE of AUTHOR

I, **Robert J. Dillman**, **Professional Geologist**, do certify that:

1. I am the **President** and the holder of a **Certificate of Authorization** for:

   ARJADEE PROSPECTING
   8901 Reily Drive
   Mount Brydges, Ontario, Canada N0L1W0

2. I graduated in 1991 with a **Bachelor of Science Degree** in **Geology** at the **University of Western Ontario.**

3. I am an active member of:

   The Professional Geoscientists of Ontario, PGO
   Prospectors and Developers Association of Canada, PDAC
   Geological Association of Canada, GAC

4. I have been a **licensed Prospector in Ontario** since 1985.

5. I have worked continuously as a **Professional Geologist** for 29 years.

6. Unless stated otherwise, **I am responsible** for the preparation of all sections of the Assessment Report titled:

   REPORT ON HEAVY MINERAL SAMPLING AND ELECTRON MICROPROBE ANALYSES, SZ PROPERTY, BEN NEVIS TOWNSHIP, ONTARIO, LARDER LAKE MINING DIVISION

   dated, January 29, 2020

7. I am not aware of any material fact or material change with respect to the subject matter of the Assessment Report that is not contained in the Assessment Report and its omission to disclose makes the Assessment Report misleading.

Dated this 29th day of January, 2020

Robert James Dillman P.Geo
Arjadee Prospecting

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ELECTRON MICROPROBE RESULTS

Garnet, J3, HMC Samples, Renaud Geological Consulting Ltd., December 16, 2019

ANALYSIS	SAMPLE	GRAIN SIZE		GRAIN #	SiO2	TiO2	Al2O3	Cr2O3	FeO	MgO	MnO	CaO	Na2O	TOTAL
1	HMC-1	SMALL	GAR	3	36.48	0.00	23.12	0.01	30.04	8.58	1.02	1.28	0.01	100.53
2	HMC-4	SMALL	GAR	1	40.68	0.00	19.82	5.19	7.79	18.72	0.40	7.19	0.02	99.79
3	HMC-4	SMALL	GAR	2	40.33	0.12	20.14	4.86	7.66	19.40	0.33	7.11	0.01	99.94
4	HMC-4	SMALL	GAR	3	38.10	0.06	22.07	0.12	25.09	8.61	0.53	5.80	0.04	100.42
5	HMC-4	SMALL	GAR	4	37.74	0.07	21.55	0.07	28.98	7.28	0.37	4.20	0.00	100.27
6	HMC-4	SMALL	GAR	6	36.68	0.06	20.57	0.01	25.87	3.73	0.39	12.66	0.00	99.97
7	HMC-5	SMALL	GAR	8	38.07	0.06	21.57	0.07	25.09	6.00	0.88	8.25	0.00	99.99
8	HMC-5	SMALL	GG	10	37.91	0.31	1.99	4.90	17.73	9.27	0.09	27.26	0.02	99.48

Uvarovite, J3, HMC Samples, Renaud Geological Consulting Ltd., December 16, 2019

ANALYSIS	SAMPLE	GRAIN SIZE		GRAIN #	COMMENTS	SiO2	TiO2	Al2O3	Cr2O3	FeO	MgO	MnO	K2O	CaO	Na2O	TOTAL
1	HMC-2	SMALL	UVA	1		36.90	0.51	1.12	6.07	20.49	1.16	0.03	0.04	31.58	0.01	97.90
2	HMC-3	SMALL	UVA	5	MAIN	36.00	1.50	1.08	8.41	17.80	0.50	0.00	0.04	33.00	0.02	98.35
3	HMC-3	SMALL	UVA	6	MAIN	36.38	0.09	16.63	2.04	7.08	0.03	1.21	0.03	33.97	0.00	97.45
4	HMC-3	SMALL	UVA	6	BRIGHT ZONE	36.55	0.15	10.12	13.68	2.45	0.07	0.91	0.03	33.48	0.00	97.44
5	HMC-5	SMALL	UVA	11		34.78	3.55	0.98	7.48	16.95	0.37	0.06	0.02	32.73	0.00	96.93
6	HMC-5	SMALL	UVA	1	MAIN	36.35	0.24	1.29	5.66	20.54	0.42	0.00	0.03	32.20	0.00	96.73
7	HMC-5	LARGE	UVA	13		36.31	0.39	1.27	3.97	20.79	1.35	0.04	0.04	33.04	0.00	97.17

Clinopyroxene, J3, HMC Samples, Renaud Geological Consulting Ltd., December 16, 2019

ANALYSIS	SAMPLE	GRAIN SIZE		GRAIN #	SiO2	TiO2	Al2O3	Cr2O3	FeO	MgO	MnO	K2O	CaO	Na2O	TOTAL
1	HMC-1	SMALL	CPX	1	53.88	0.27	2.80	2.21	1.50	17.16	0.12	0.02	20.30	2.11	100.37
2	HMC-1	SMALL	CPX	2	52.60	0.27	0.83	1.23	4.47	20.14	0.16	0.02	19.89	0.45	100.07
3	HMC-3	SMALL	CPX	1	51.92	0.28	1.04	1.18	5.28	18.99	0.09	0.04	20.44	0.50	99.76
4	HMC-4	SMALL	CPX	8	52.53	0.35	1.17	1.31	5.40	18.20	0.16	0.04	20.31	0.54	100.00
5	HMC-4	SMALL	CPX	10	51.93	0.09	0.86	0.40	4.97	16.74	0.15	0.03	23.99	0.58	99.73

Orthopyroxene, J3, HMC Samples, Renaud Geological Consulting Ltd., December 16, 2019

ANALYSIS	SAMPLE	GRAIN SIZE		GRAIN #	SiO2	TiO2	Al2O3	Cr2O3	FeO	MgO	MnO	K2O	CaO	Na2O	NiO	TOTAL
1	HMC-5	SMALL	OPX	5	52.72	0.16	1.48	0.21	12.14	31.17	0.17	0.03	1.46	0.03	0.20	99.76

Olivine, J3, HMC Samples, Renaud Geological Consulting Ltd., December 16, 2019

ANALYSIS	SAMPLE	GRAIN SIZE		GRAIN #	SiO2	TiO2	Al2O3	Cr2O3	FeO	MgO	MnO	K2O	CaO	Na2O	NiO	TOTAL	Fo	Fa
1	HMC-5	LARGE	OLI	19	31.66	0.03	0.00	0.00	50.29	17.02	1.05	0.03	0.43	0.02	0.00	100.53	**37.100**	**61.500**
2	HMC-5	LARGE	OLI	20	32.70	0.07	0.00	0.00	46.58	19.75	0.95	0.03	0.44	0.01	0.02	100.55	**42.500**	**56.280**
3	HMC-5	LARGE	OLI	22	32.92	0.01	0.00	0.00	43.05	23.51	0.76	0.04	0.34	0.00	0.00	100.64	**48.890**	**50.200**
4	HMC-5	LARGE	OLI	24	33.38	0.06	0.02	0.02	39.31	26.77	0.57	0.03	0.33	0.02	0.00	100.50	**54.470**	**44.870**

Chromite, J3, HMC Samples, Renaud Geological Consulting Ltd., December 16, 2019

ANALYSIS	SAMPLE	GRAIN SIZE		GRAIN #	SiO2	TiO2	Al2O3	Cr2O3	FeO	MnO	MgO	ZnO	NiO	TOTAL
1	HMC-4	SMALL	CHR	12	0.02	0.22	12.71	52.67	27.58	0.56	5.66	0.29	0.08	99.80
2	HMC-4	SMALL	CHR	15	0.12	0.57	30.20	35.83	15.08	0.27	17.01	0.22	0.23	99.52

Ilmenite, J3, HMC Samples, Renaud Geological Consulting Ltd., December 16, 2019

ANALYSIS	SAMPLE	GRAIN SIZE		GRAIN #	COMMENTS	SiO2	TiO2	Al2O3	Cr2O3	FeO	MnO	MgO	ZnO	NiO	Nb2O5	TOTAL
1	HMC-1	SMALL	ILM	7		0.02	53.96	0.06	0.07	42.41	0.46	2.64	0.02	0.01	0.02	99.65
2	HMC-1	SMALL	ILM	8		0.00	54.04	0.08	0.05	43.34	0.63	2.54	0.07	0.00	0.04	100.79
3	HMC-2	SMALL	ILM	1		0.04	53.58	0.07	0.00	43.79	0.58	1.80	0.02	0.05	0.00	99.93
4	HMC-2	SMALL	ILM	2		0.08	53.81	0.04	0.00	41.69	0.61	2.73	0.02	0.00	0.07	99.05
5	HMC-2	SMALL	ILM	3	INCLUSION OF ALBITE	0.03	53.14	0.05	0.01	43.30	0.61	1.97	0.01	0.00	0.02	99.13
6	HMC-2	SMALL	ILM	4	INCLUSION OF AMPHIBOLE+ALBITE	0.05	54.17	0.05	0.02	43.15	0.72	1.69	0.08	0.00	0.00	99.92
7	HMC-2	SMALL	ILM	5		0.09	52.65	0.09	0.00	42.80	0.55	2.27	0.06	0.02	0.01	98.53
8	HMC-2	SMALL	ILM	6		0.07	52.28	0.06	0.02	43.68	0.61	1.34	0.11	0.00	0.00	98.17
9	HMC-4	SMALL	ILM	11	WITH INCLUSION OF ALBITE+BIOTITE	0.01	54.09	0.07	0.03	43.27	0.63	2.33	0.02	0.03	0.00	100.49
10	HMC-1	LARGE	ILM	10		0.00	52.09	0.08	0.06	43.78	0.71	1.83	0.10	0.00	0.00	98.65
11	HMC-4	LARGE	ILM	28		0.01	53.26	0.03	0.04	43.74	0.60	1.88	0.11	0.02	0.00	99.69
12	HMC-4	LARGE	ILM	29		0.01	52.47	0.06	0.00	43.03	0.62	1.80	0.09	0.00	0.00	98.08
13	HMC-4	LARGE	ILM	30		0.01	52.49	0.08	0.01	43.56	0.66	2.36	0.14	0.00	0.01	99.31
14	HMC-4	LARGE	ILM	31		0.00	52.53	0.00	0.00	44.74	0.85	0.71	0.08	0.05	0.00	98.96